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# GEORGIA'S Forest Products Industry: Performance and Contribution to the State's Economy, 1970 to 1980

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PSW FOREST AND RANGE  
EXPERIMENT STATION

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## Abbreviations

### States

AL Alabama  
AR Arkansas  
FL Florida  
GA Georgia  
KY Kentucky  
LA Louisiana  
MS Mississippi  
NC North Carolina  
OK Oklahoma  
SC South Carolina  
TN Tennessee  
TX Texas  
VA Virginia  
SO South  
US United States

### Industries

FPI Forest Products Industry  
LWP Lumber and Wood  
Products  
PAP Paper and Allied  
Products  
WF Wood Furniture

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## Abstract

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Employment and earnings in Georgia's forest products industry, like those of most Southern States, grew significantly between 1970 and 1980. The forest products industry accounted for nearly the same share of the State's economic base in 1980 as in 1970. Moreover, during this period, the State increased its share of the Nation's forest products industry employment and earnings. Pulp and allied products had the highest productivity, but lumber and wood products experienced the largest increase in productivity between 1972 and 1977.

Keywords: Forest products industries, economics in wood industry, Georgia.

## Preface

Georgia's forest products industry, like that of most Southern States, experienced significant growth during the 1970's. This resurgence resulted from the increasing size and amount of timber, investment in new plants and equipment, and a growing demand for Georgia's forest products.

This report briefly describes Georgia's forest products industry--its composition, location, evolution, and relation to economic activity elsewhere in the State, the South, and the Nation.

This is one in a series of reports for each of the 13 Southern States. These reports are companions to a forthcoming analysis of the changing roles of the forest products industries of the South and the Pacific Northwest.

## Highlights

- In 1980, the forest products industry was the fourth largest component of Georgia's economic base (the economic base is comprised of industries producing for export outside the State). Furthermore, the forest products industry accounted for as large a share of the State's economic base in 1980 as in 1970.
- Paper and allied products manufacturing is the largest component of the State's forest products industry. During the 1970's, it was the fastest growing segment of Georgia's forest products industry in terms of both employment and earnings.
- Pulp and allied product manufacturing accounted for the largest share of value added by Georgia's forest products industry. Lumber and wood products, however, showed a significantly greater increase in the rate of growth between 1972 and 1977.
- In terms of capital productivity (measured in terms of value added minus payroll, per worker hour), Georgia's forest products industry was the third most efficient in the South.

- In 1977, paper and allied products had the highest productivity in the State's forest products industry. Lumber and wood products, however, exhibited the greatest increase in productivity between 1972 and 1977.
- During the 1970's, Georgia increased its share of the Nation's employment and earnings in the forest products industry.
- In 1980, average earnings in Georgia were below the average for the Nation's forest products industry. But between 1970 and 1980, the rate of growth in earnings in Georgia exceeded the rate for the Nation.
- Earnings for Georgia's paper and allied products workers were significantly greater than the earnings in the other segments of the forest products industry.
- In 1980, only five Southern States were more dependent on the forest products industry than was Georgia.
- In 1977, the forest products industry in Georgia produced more value added than did its counterparts in all other Southern States except North Carolina.

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**The Forest Products  
Economy of Georgia  
The State's Workforce**

Georgia's estimated full- and part-time workforce in 1980 was comprised of an estimated 2.6 million employees and proprietors (see appendix tables for sources of employment and earnings data). Like most Sun Belt States, Georgia's workforce grew faster between 1970 and 1980 than did the national average (28.1 percent versus 22.3 percent). Total earnings--wage and salary payments and proprietorial income--also grew faster than the national average. Measured in constant 1977 dollars, the State's earnings increased by 37.2 percent as compared to 27.4 percent for the Nation. As can be seen in the following tabulation, manufacturing, services, and state and local government were the State's three largest employer categories:

<b>Employers</b>	<b>Percent of total employment, 1980</b>	
	<b>Georgia</b>	<b>U.S.</b>
Major industries:		
Manufacturing (including the forest products industry)	19.94	19.15
Services	15.92	18.22
State and local government	13.34	12.56
Retail trade	13.19	14.18
Transportation, communication, and public utilities	5.45	4.84
Wholesale trade	6.09	4.97
Nonfarm proprietors	5.97	6.58
Agriculture	4.25	4.39
Construction	4.04	4.08
Subtotal	88.19	88.97
All other industries	11.81	11.03
Total	100.00	100.00

## Components of the State's Economic Base

Along with total employment, there is another and perhaps more important way to judge an industry's contribution to Georgia's economy. For the State's economy to grow and develop, it must attract "new dollars" so residents can buy goods and services produced elsewhere. The industries that export products and services to other states and the world and bring in new dollars constitute the State's "economic base." Generally speaking, most manufacturing employment is classified as "economic base" (or "basic"), while service or "residential" employment (for example, barber shops, realty firms, schools, and local government) is primarily geared to producing for local needs.

Residential employment is supported by the economic base. Money flowing in provides income for wage earners and entrepreneurs to spend on locally purchased goods and services. In most cases, the economic growth of a region is dependent upon the success of its economic base.

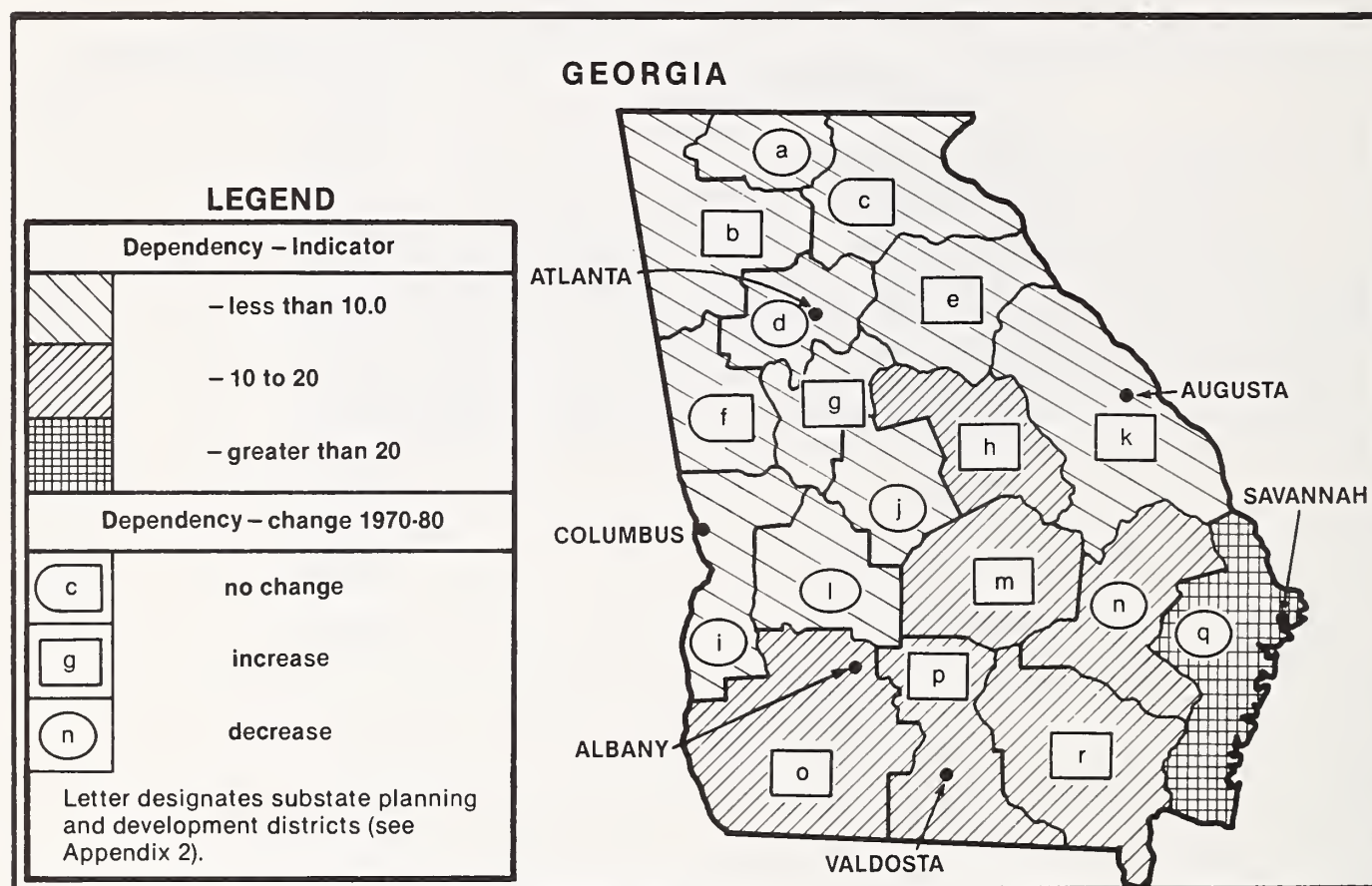
We used the "excess employment" technique to identify the industries that comprise Georgia's economic base. This approach accepts the national distribution of employment among industries as a norm. Any industry with employment in excess of this norm is considered to be producing for export markets outside the State and is part of Georgia's economic base. The percentage of Georgia's excess employment served as an indicator of the State's dependency on a particular industry for generating new dollars from outside the State. The percentage associated with the forest products industry is defined as the **timber-dependency indicator** (table 2 describes how excess employment and industry dependency indicators for Georgia were calculated).

In 1980, ten industries accounted for nearly 96 percent of the State's "excess employment"--that is, its economic base (see tabulation below). Though these same industries accounted for only a slightly smaller share (95.06 percent) in 1970, the change in shares of certain individual industries was quite significant. Textiles and apparel dominated Georgia's economic base, but less so in 1980 than in 1970. Federal military and civilian employment was also less important in 1980 than 1970. the growth of Georgia's transportation industry reflects the importance of Atlanta as a major air transportation center. As seen in the following tabulation of selected industry dependency indicators, the forest products industry was nearly as important in 1980 as in 1970.

<u>Economic base industries</u>	<u>Dependency indicator</u>	
	<u>1970</u>	<u>1980</u>
	(Percent of economic base)	
Textiles and apparel	48.53	44.92
Wholesale trade	4.67	10.43
Federal military	14.82	10.06
Forest products	7.63	7.09
Transportation	3.88	6.93
Food and kindred products	4.42	5.91
Federal civilian	5.92	4.23
Agriculture	3.28	4.15
Nonmetallic minerals	1.50	1.49
Services	.64	1.18
Subtotal	94.29	96.39
All other industries	5.71	3.61
Total	100.00	100.00

## Geographical Importance of the State's Forest Products Industry

The contribution of the forest products industry to Georgia's economic base varies considerably between substate districts (see Appendix 2 for a listing of counties by district). Generally speaking, the forest products industry is more important in southern Georgia than elsewhere. For example, the forest products industry accounts for 25 percent of the economic base (that is, those industries producing for export to other states and the rest of the world) in the Savannah area, but less than 1 percent in the Atlanta area. Georgia's dependency on the forest products industry to produce exports increased in most substate districts between 1970 and 1980. An important exception was the Savannah area, where it decreased slightly.

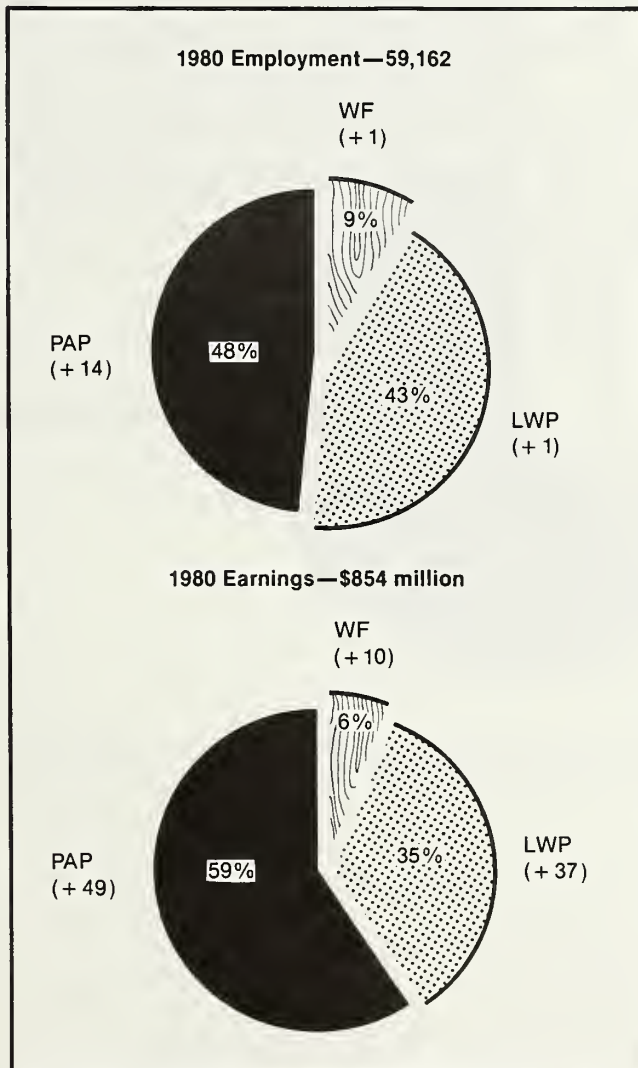


Source: Substate estimates for 1970 and 1980 were derived from unpublished county data series provided by the U.S. Department of Commerce, Regional Economic Information System, Washington, DC; and from the Department's *County Business Patterns*. The lower case letters used to designate substate districts correspond to the geographical classification of counties as shown in Appendix 2.

### Composition of the State's Forest Products Industry

Georgia's forest products industry is comprised of paper and allied products, lumber and wood products (not including mobile homes), and wood furniture manufacturing. In 1980, paper and allied products accounted for the largest share of approximately 59,000 workers employed by Georgia's forest products industry. This industry also had the largest share of 1980 earnings.

Wood furniture and lumber and wood products employment changed little during the 1970's. Growth in employment of paper and allied products was substantially greater than for the other two components. Employment in all three forest products industries grew less rapidly than did the average for all industries (22.3 percent). Growth of wood furniture earnings lagged behind the national average (27.4 percent), although earnings growth for the other components exceeded the national average.

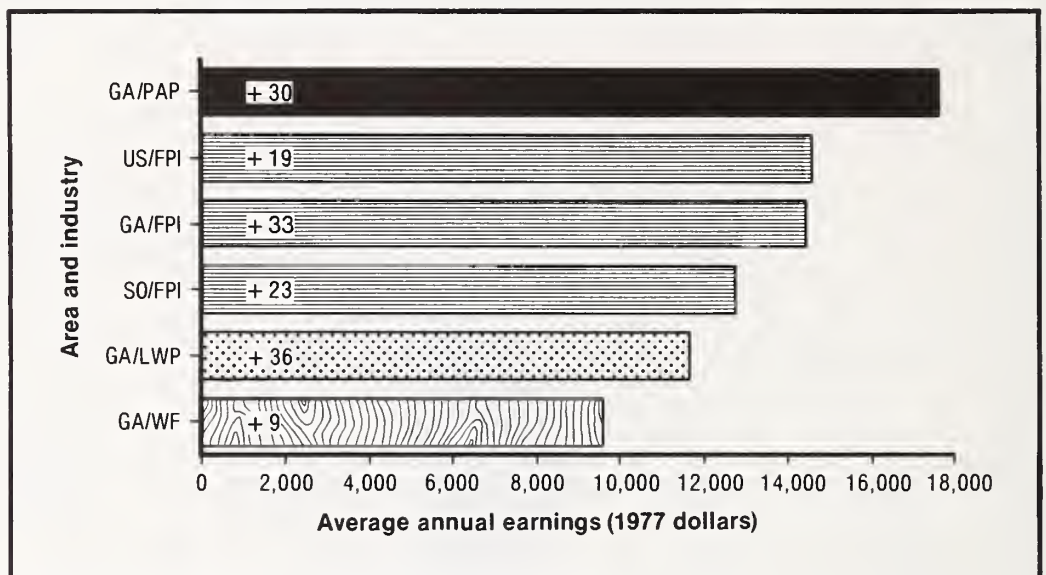


Numbers in parentheses show percent of change from 1970 to 1980.

## Average Annual Earnings per Worker

Average annual 1980 earnings per worker in paper and allied products were significantly greater than were earnings in the other two forest products industries. Higher average skill levels and capital per worker, and unions account for this difference. Earnings in the wood furniture industry were half those for paper and allied products and significantly below the average for all forest products industries in the South and the United States.

Average annual earnings in Georgia were nearly equal to the average for the Nation's forest products industry; moreover, average growth in earnings was greater for Georgia than for the Nation. Growth of earnings for the wood furniture industry lagged behind the rest of the industry.

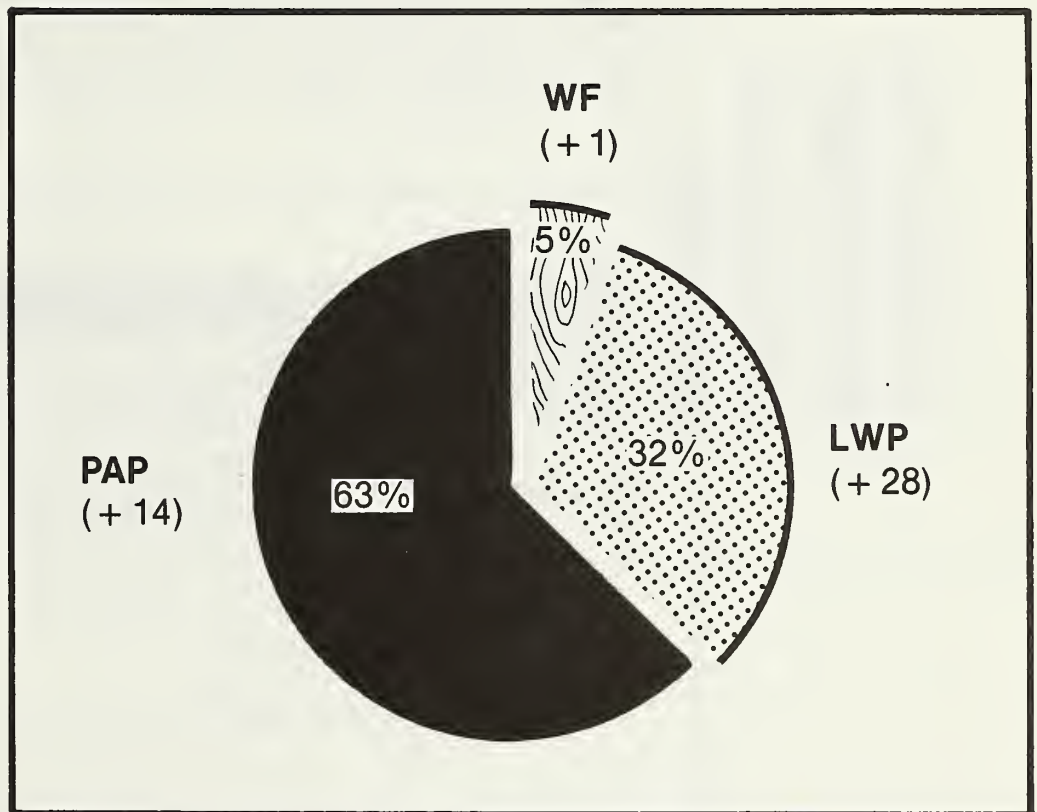


Numbers in bars show percent of change from 1970 to 1980.

**Value Added by the  
Forest Products  
Industry**

Value added by manufacturing represents income payments directly to workers and business owners. It is equal to the value of shipments less the cost of materials, parts, supplies, fuel, goods purchased for resale, electric energy, and contract work. Unlike value of shipments, value added avoids double counting. Consequently, value added by manufacturing is considered the best monetary gauge of the relative economic importance of a manufacturing industry.

In 1977, paper and allied products accounted for more than half of the \$1.5 billion of the value added by Georgia's forest products industry. But between 1972 and 1977, the value added by lumber and wood products grew at twice that of paper and allied products.

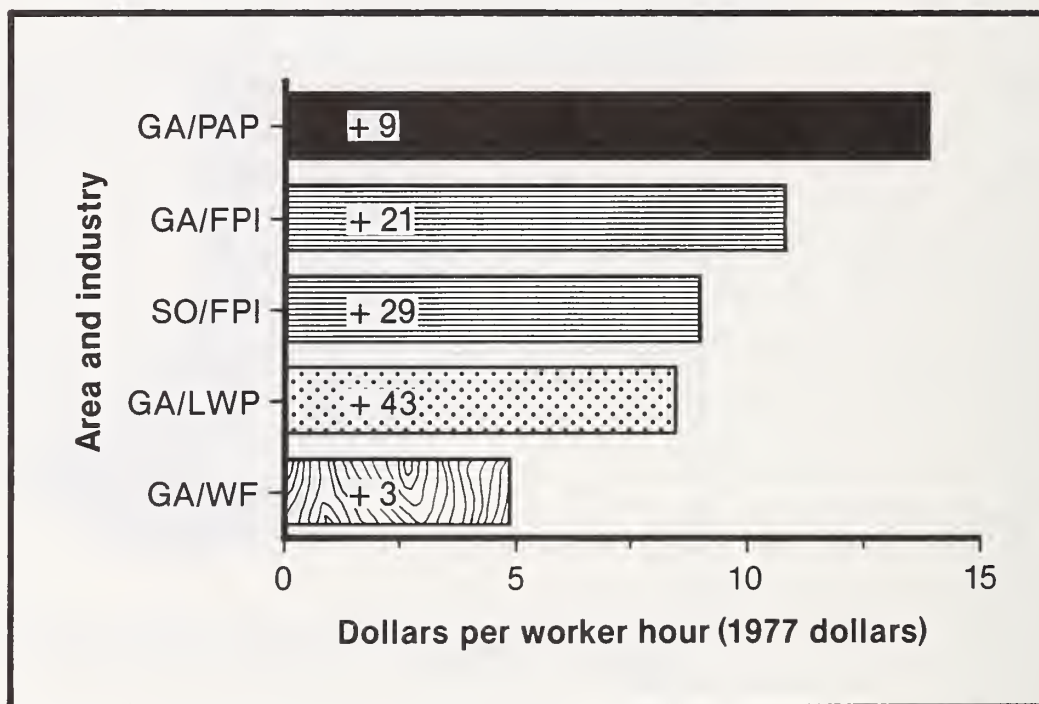


Numbers in parentheses show percent of change from 1972 to 1977.

## Capital Productivity

Increases in productivity are necessary for an industry to remain competitive in the marketplace. Capital productivity of an industry is measured in terms of value added less payrolls per worker hour--VAMP (see table 3 for an explanation of how capital productivity was calculated for Georgia's forest products industry). This measure of productivity adjusts for wide differences in payroll among industries and represents the return to capital investment and entrepreneurship.

Not surprisingly, paper and allied products had the highest productivity in Georgia's forest products industry. This industry is more capital intensive and in the past has attracted considerable investment in new facilities and equipment. During the mid-1970's, however, the lumber and wood products industry exhibited a larger gain in productivity than did paper and allied products. Continued improvements in logging techniques and the growth of plywood manufacturing accounted for most of the gain in the lumber and wood products industry. The relatively low productivity of the wood furniture industry as compared to the rest of the forest products industry reflects the labor intensive nature of its manufacturing process.

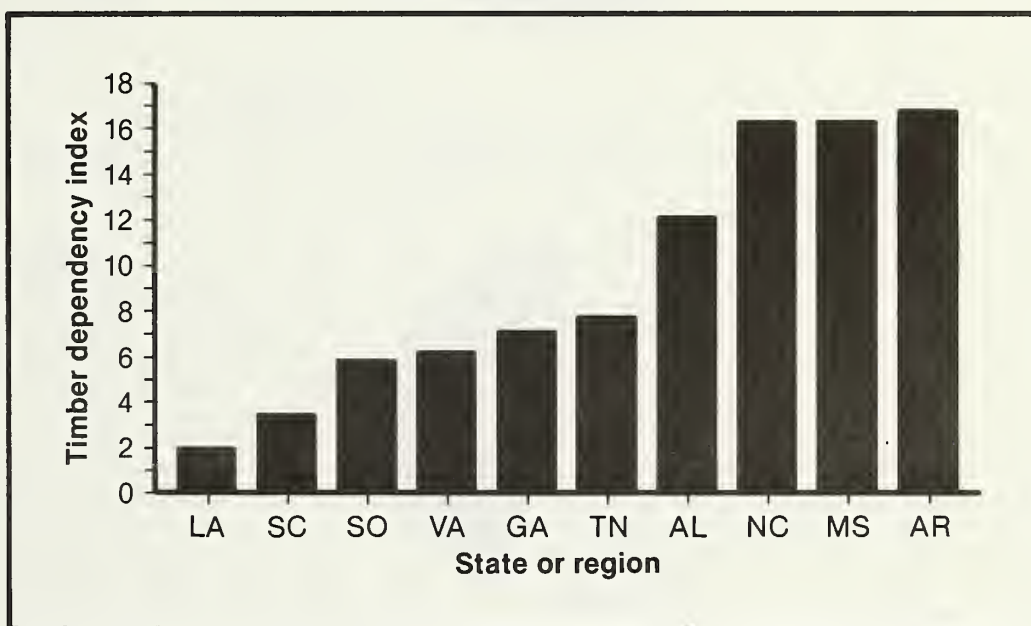


Numbers in bars show percent of change from 1972 to 1977.

## The Forest Products Industry in the South

### Importance of the Industry Across the South

The dependency indicators suggest that all but four States in the South manufacture forest products in excess of local needs: Florida, Kentucky, Oklahoma, and Texas were not self-sufficient with respect to forest products. Consequently, on net balance, their respective forest products industries did not generate new dollars from outside. In Georgia, the forest products industry accounts for 7.1 percent of economic base employment, or approximately 1 out of 14 basic employees. In three states--North Carolina, Arkansas and Mississippi--the forest products industry accounted for approximately 16 percent of those State's economic base, or 1 out of 6 basic employees.



## **Industry Composition**

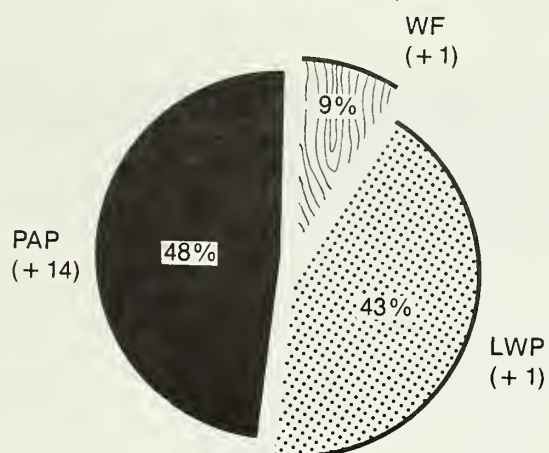
Paper and allied products accounted for a larger share of Georgia's 1980 forest products industry employment and earnings than it did for either the South or the Nation. Although this industry's employment increased in Georgia and the South between 1970 and 1980, it decreased nationwide. Likewise, the growth of the paper and allied products industry's earnings nationwide lagged behind those in Georgia and the South.

The wood furniture industry is a less important segment of the forest products industry in Georgia than in the South or the Nation. Furthermore, growth of this industry's employment and earnings were greater for the South than for Georgia.

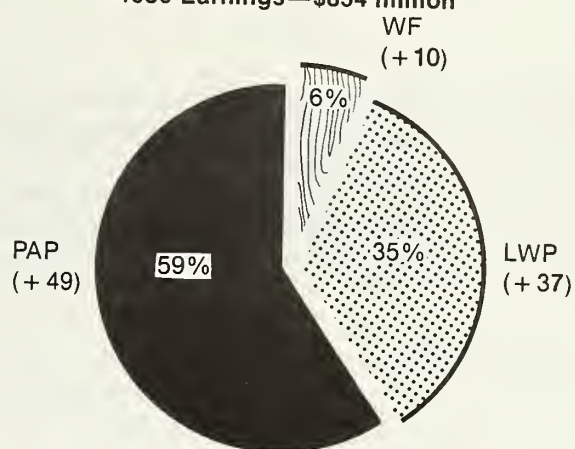
Lumber and wood products accounted for about the same proportion of Georgia's forest products industry as it did for the South and the Nation. During the 1970's, employment growth in Georgia was less than elsewhere. Growth in earnings was greater, however, in Georgia.

## GEORGIA

1980 Employment—59,162

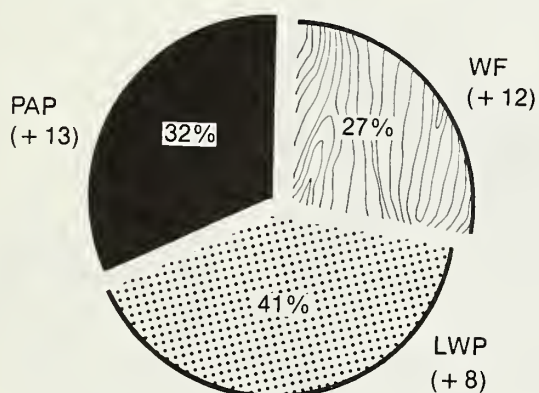


1980 Earnings—\$854 million

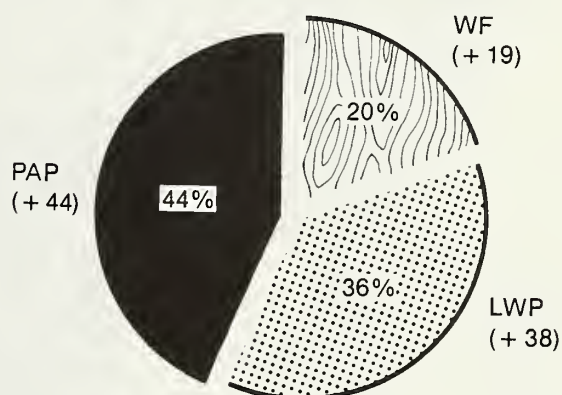


## THE SOUTH

1980 Employment—620,567

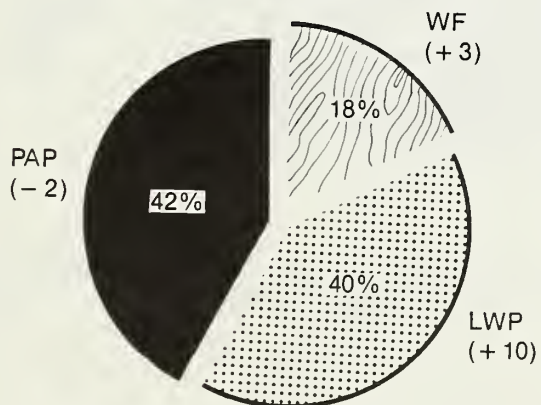


1980 Earnings—\$7.96 billion

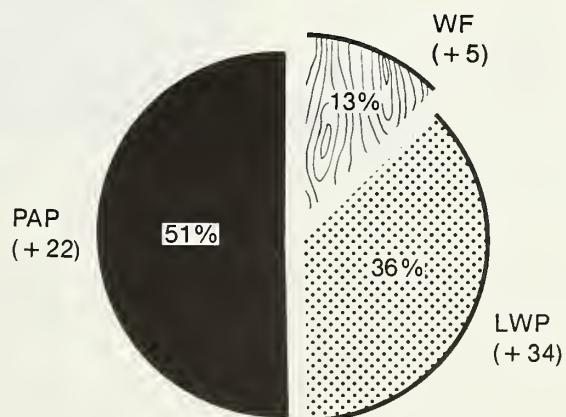


## UNITED STATES

1980 Employment—1,634,000



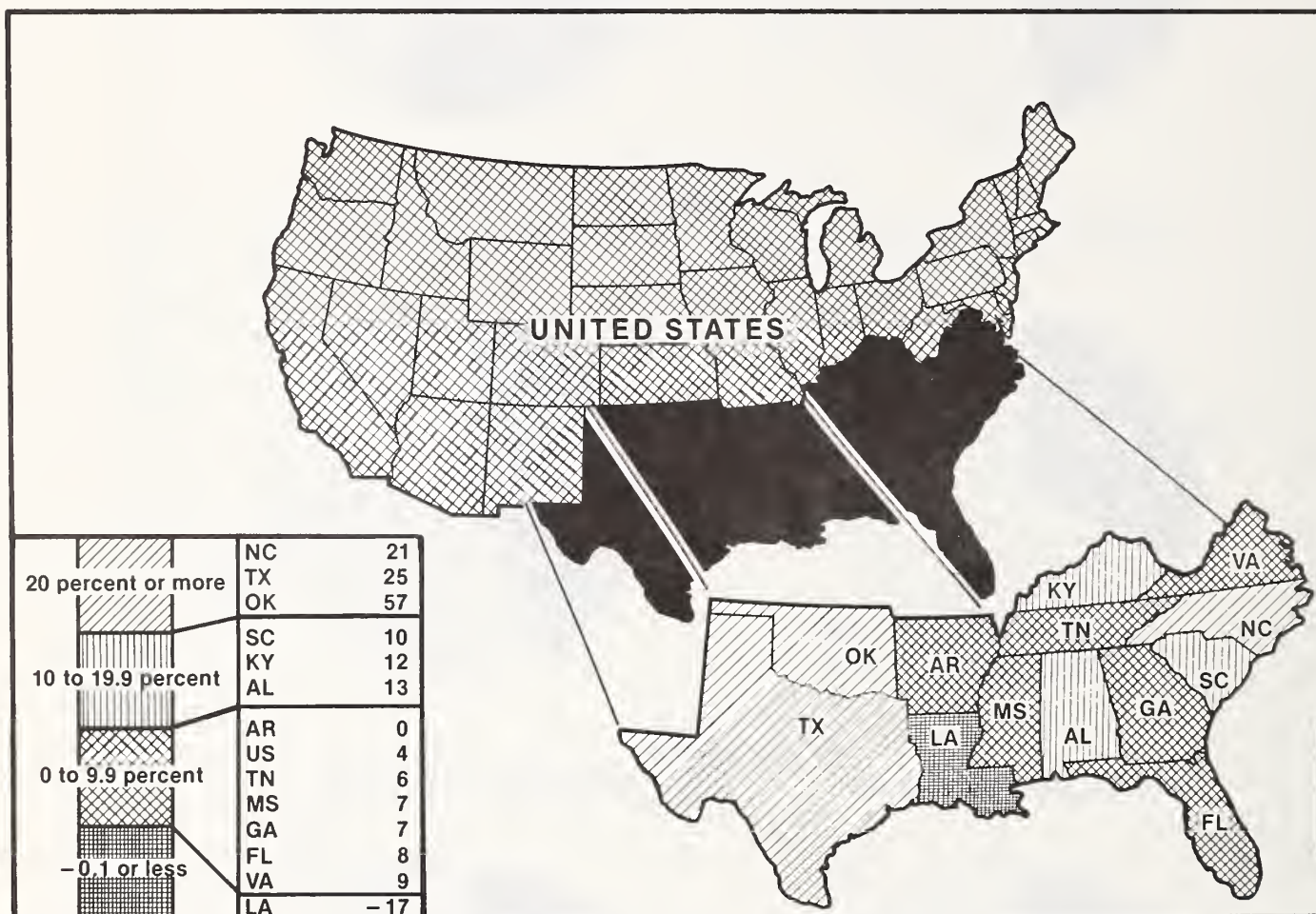
1980 Earnings—\$23.65 billion



Numbers in parentheses show percent of change from 1970 to 1980.

## Growth of Employment

With the exception of Arkansas and Louisiana, forest products industry employment in each of the Southern States grew faster than did the U.S. counterpart. Employment in two states--Oklahoma and Texas--grew faster than the "all-industry" average of 22.3 percent. Employment growth in Georgia's forest products industry was nearly twice the national rate, and ranked ninth among the 13 Southern States.

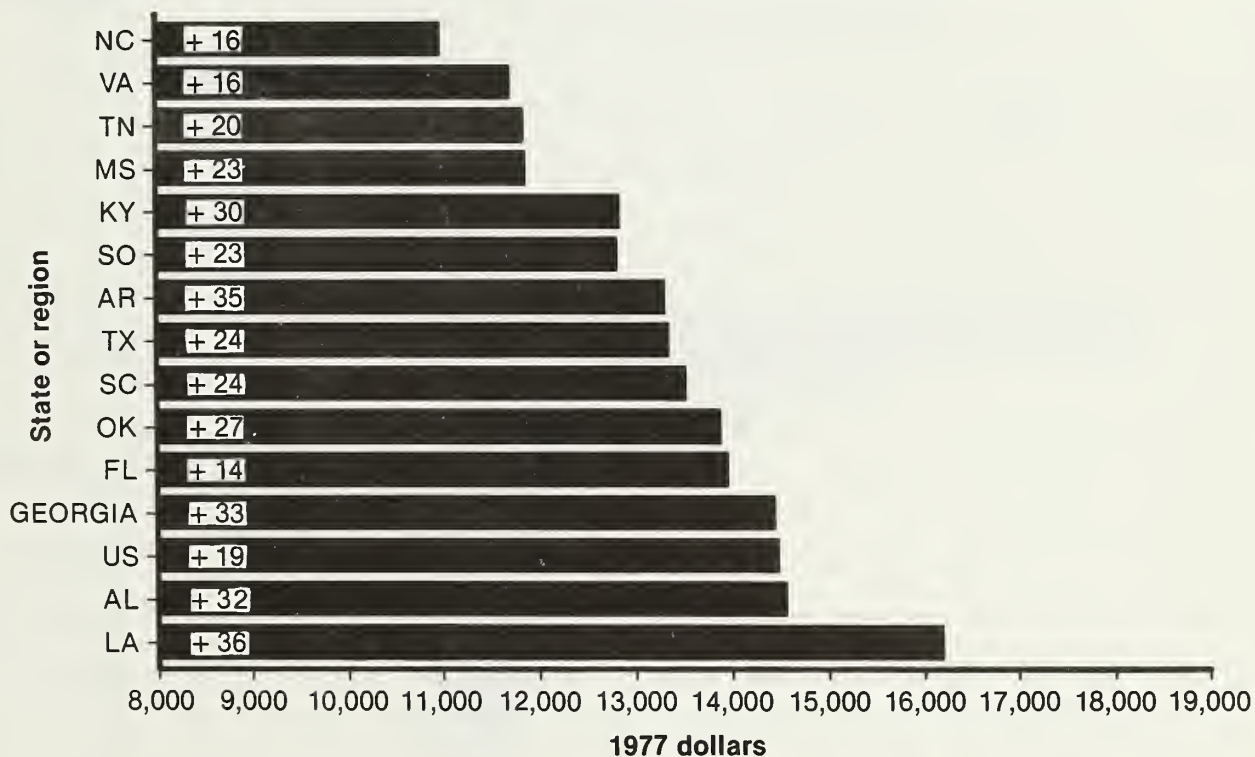


## Average Annual Earnings

Average annual earnings per worker in the forest products industry differed significantly by State in 1980: Approximately \$5,000 separated the State with the highest earnings--Louisiana--from the State with the lowest--North Carolina. Pulp and allied products manufacturing, which has traditionally paid higher wages than have other forest products industries, dominated Louisiana's forest products industry. Wood furniture, which has paid lower average wages, dominated North Carolina's industry.

Average annual earnings per worker in Georgia's forest products industry matched the industry's U.S. average. In both average annual earnings per worker and growth in earnings, Georgia ranked third in the South.

Generally speaking, paper and allied products dominated the forest products industry in the states with the highest average annual earnings. This relationship reflects higher job skills and unions in the paper industry.



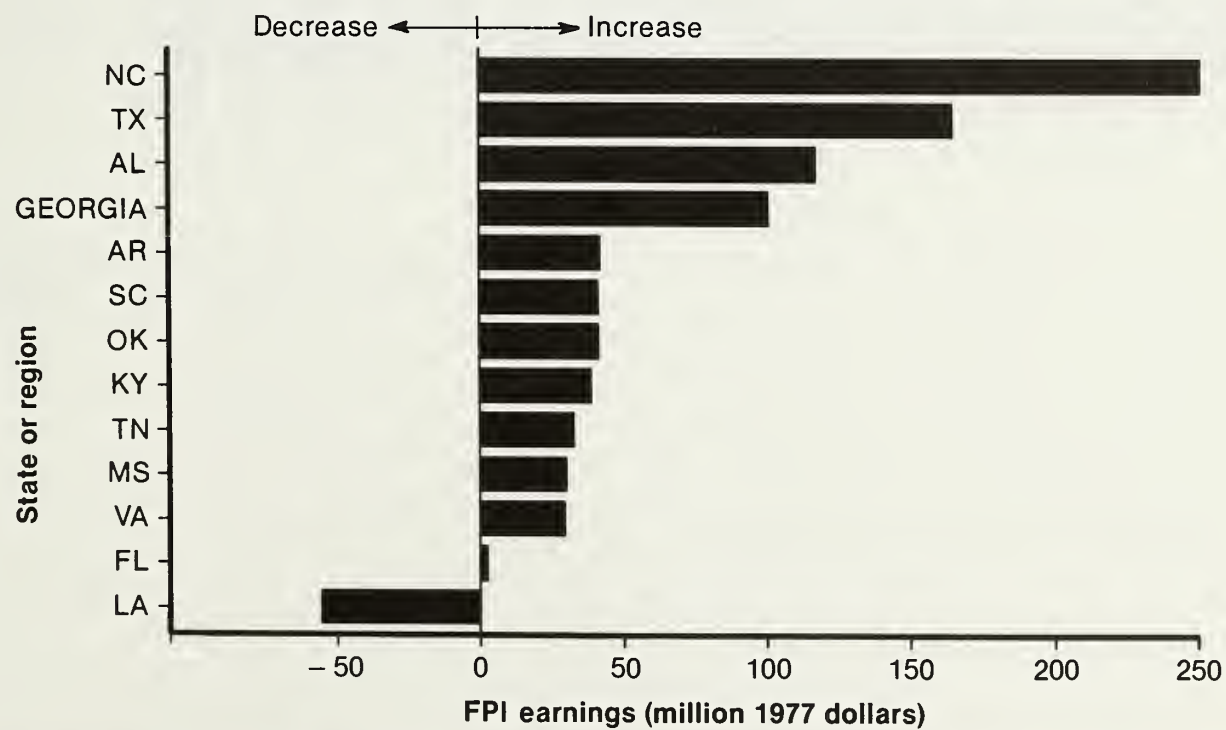
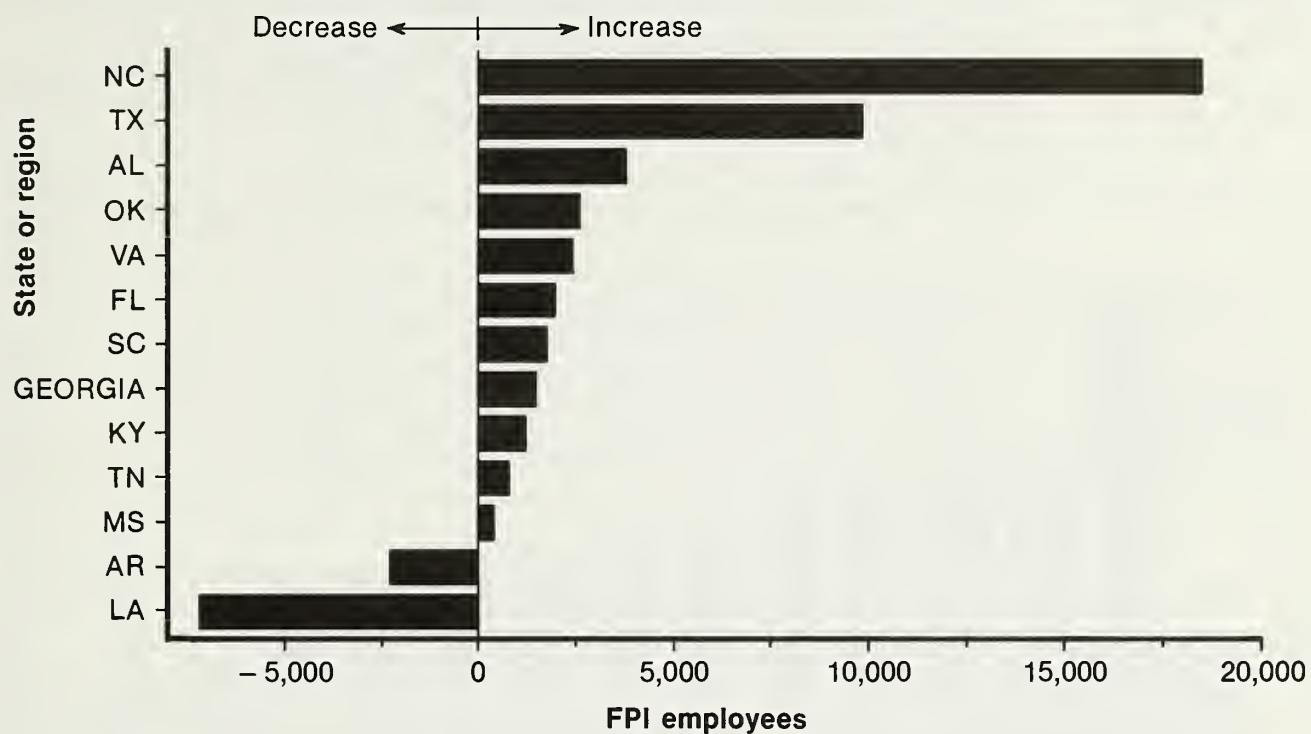
Numbers in bars show percent of change from 1970 to 1980.

### **Shift in Employment and Earnings**

The regional shift shows how much more or less employment and earnings a State would have had in the forest products industry in 1980 than in 1970 had the industry grown at the national rate. For example, Georgia had approximately 1,400 more employees in 1980 than it would have had if its forest products industry had grown at the national rate.

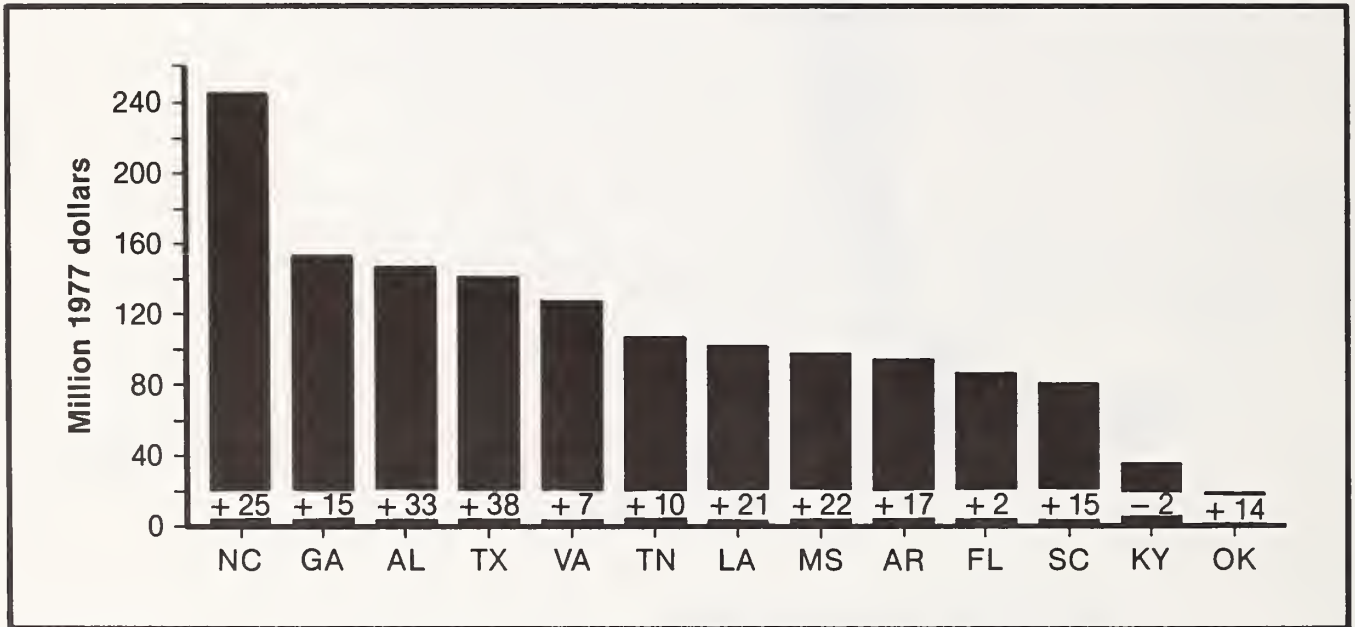
Between 1970 and 1980, in both employment and earnings, the forest products industry increased in every Southern State except Louisiana. Moreover, all but two States increased their share of the Nation's forest products industry employment, and all but Louisiana increased their share of earnings. Increased shares of employment and earnings reflect the comparative advantage the South's forest products industry enjoyed over this industry in the rest of the Nation.

Several factors (for example, relatively lower labor costs, lower raw materials costs, and closer proximity to markets) might account for a region's comparative advantage, although adverse trends with respect to one factor need not reduce a region's advantage. In the case of the South, for instance, increasing labor costs need not adversely affect its comparative advantage if increased capital or labor productivity offsets higher labor costs.



**Value Added by the  
Forest Products  
Industry**

In 1977, the forest products industry of North Carolina produced more value added than any other State in the South. Georgia was second among the 13 Southern States, followed by Alabama. Texas was not only one of the leading States in terms of total value added, it also led the South in terms of the change in value added between 1972 and 1977. One State, Kentucky, produced less value added in 1977 than in 1972.

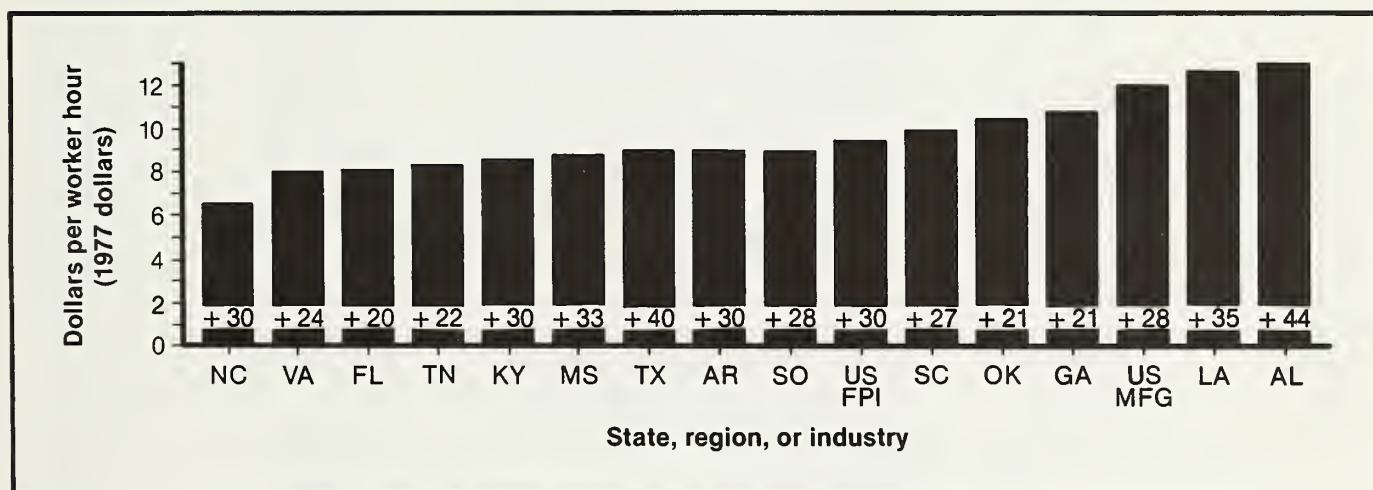


Numbers in bars show percent of changes from 1972 to 1977.

## Capital Productivity

The paper and allied products industry, which is more capital-intensive and, therefore, more susceptible to technological change than other forest products industries, exhibited the highest productivity within the forest products industry. The wood furniture industry, on the other hand, is the most labor-intensive of the three industry groups. North Carolina, for example, produced more value added than any other State in the South, but the productivity of its forest products industry in 1977 was the lowest. This reflects the dominant role of the labor-intensive wood furniture industry in North Carolina.

Increases in productivity exceeded increases in payroll per worker between 1972 and 1977 for all the Southern States. This relationship is in part responsible for the South's comparative advantage in the forest products industry. The average productivity for all-manufacturing industries exceeded that of the forest products industries in 11 of the 13 Southern States. But the forest products industries in five Southern States, including Georgia, exceeded the average productivity for the Nation. Furthermore, the increase in productivity of the forest products industry in all but six States exceeded that for all-manufacturing.



Numbers in bars show percent of change from 1972 to 1977.

## Acknowledgment

Many helpful suggestions of several reviewers were incorporated in this research paper. This project was partially funded by the USDA Forest Service, State and Private Forestry, Area Planning and Development, State Planning for Forest Resources.

## Appendix 1 Tables

**Table 1--Total labor and proprietorial employment and income, by industry, Georgia, 1980<sup>1/</sup>**

Industry number	Industry	Employees	Total income
		<i>Number</i>	<i>Million 1977 dollars<sup>2/</sup></i>
Wage and Salary			
1	Agriculture	37,244	504.5
2	Agricultural services, forestry, and fisheries	10,675	102.2
3	Coal mining	25	1.1
4	Oil and gas extraction	69	2.8
5	Metal mining	111	.5
6	Nonmetallic minerals	7,613	110.0
7	Construction	105,270	1,421.7
8	Food and kindred products	59,096	725.6
9	Tobacco	1,347	27.9
10	Textile mill production	117,698	1,205.8
11	Apparel and other textiles	72,517	508.8
12	Paper and allied products	28,428	507.0
13	Printing and publishing	23,445	277.8
14	Chemical and allied products	16,904	271.1
15	Petroleum refining	1,292	25.3
16	Rubber and miscellaneous plastics	14,687	179.0
17	Leather and leather products	2,392	17.2
18	Lumber and wood products, except mobile homes	25,543	297.3
19	Mobile homes	3,606	42.0
20	Wood furniture	5,191	49.8
21	Other furniture and fixtures	4,494	43.2
22	Stone, clay, and glass products	18,031	246.0
23	Primary metals	16,241	267.8
24	Fabricated metals	21,132	277.8
25	Machinery, excluding electrical	21,945	296.7
26	Electrical machinery	20,130	275.3
27	Transportation equipment except motor vehicles	18,091	373.0
28	Motor vehicles	16,165	343.8
29	Ordnance	<i>3/ --</i>	<i>3/ --</i>
30	Instruments and related equipment	4,798	56.8
31	Miscellaneous manufacturing	7,105	70.8
32	Railroad transportation	14,313	280.8
33	Trucking and warehousing	35,119	550.0
34	Local transit	2,329	26.3

See footnotes at end of table.

**Table 1--Total labor and proprietorial employment and income, by industry, Georgia, 1980<sup>1/</sup>(continued)**

Industry number	Industry	Employees	Total income
		Number	Million 1977 dollars <sup>2/</sup>
Wage and Salary			
35	Air transportation	26,245	636.3
36	Pipeline transportation	474	11.0
37	Transportation services	3,394	46.4
38	Water transportation	3,751	39.0
39	Communications	35,957	702.7
40	Electrical, gas, and sanitation services	20,336	400.9
41	Wholesale trade	158,520	2,543.6
42	Retail trade	343,393	2,729.1
43	Banking	30,522	340.0
44	Other credit agencies	30,890	324.6
45	Insurance	40,314	617.2
46	Real estate and combinations	22,714	291.4
47	Hotel and other lodging	28,571	198.7
48	Personal, miscellaneous business, and repair services	94,929	955.0
49	Auto repair service	14,980	183.6
50	Amusement	11,455	81.0
51	Motion pictures	3,266	22.0
52	Private households	78,003	197.2
53	Medical and other health	75,718	1,145.2
54	Private education	25,844	205.3
55	Nonprofit organizations	52,847	362.2
56	Miscellaneous services	28,574	653.8
57	Federal civilian	84,411	1,272.2
58	Federal military	89,679	726.5
59	State and local government	347,430	3,057.4
Proprietorial			
60	Farm proprietors	73,538	337.1
61	Nonfarm proprietors	155,613	1,710.7
Total		2,604,414	29,175.8

<sup>1/</sup> Source of data for this table for Georgia, other States of the South, and the United States: unpublished data, U.S. Department of Commerce, Regional Economics Measurements Division, Regional Economic Information System (REIS), Washington, DC, 1982. Unpublished data used by the U.S. Department of Commerce in preparing their *County Business Patterns* (CBP) series on employment and payroll were used to differentiate wood-related from nonwood-related employment and earnings. For example, CBP data were used to separate mobile homes (no. 19, above) from the lumber and wood products industry (no. 18). Wood furniture (no. 20) was similarly separated from other furniture and fixtures (no. 21).

<sup>2/</sup> The Personal Consumption Expenditures (CPE) deflator, 1977 = 100, was used to deflate actual dollars.

<sup>3/</sup> Included with fabricated metals and other related industries.

**Table 2--Dependency indexes for Georgia, 1980**

(In percent)

Industry	Employment		Georgia excess employment <sup>1/</sup>	Dependency index <sup>2/</sup>
	Georgia	United States		
Agriculture	1.709	1.461	0.248	1.737
Agricultural services, forestry, and fisheries	.490	.618	--	--
Farm proprietors	3.375	3.030	.345	2.414
Coal mining	.001	.274	--	--
Oil and gas extraction	.003	.605	--	--
Metal mining	.005	.109	--	--
Nonmetallic minerals	.349	.137	.213	1.490
Construction	4.831	4.744	.087	.611
Food and kindred products	2.712	1.869	.843	5.907
Tobacco	.062	.074	--	--
Textile mill production	5.402	.931	4.471	31.320
Apparel and other textiles	3.328	1.387	1.941	13.600
Paper and allied products	1.305	.756	.549	3.846
Printing and publishing	1.076	1.374	--	--
Chemical and allied products	.776	1.218	--	--
Petroleum refining	.059	.220	--	--
Rubber and miscellaneous plastics	.674	.796	--	--
Leather and leather products	.110	.259	--	--
Lumber and wood products, except mobile homes	1.172	.709	.463	3.245
Mobile homes	.165	.051	.115	.802
Wood furniture	.238	.323	--	--
Other furniture and fixtures	.206	.188	.018	.127
Stone, clay, and glass products	.827	.731	.097	.679
Primary metals	.745	1.262	--	--
Fabricated metals	.970	1.774	--	--
Machinery, excluding electrical	1.007	2.732	--	--
Electrical machinery	.924	2.313	--	--
Transportation equipment except motor vehicles	.830	1.213	--	--
Motor vehicles	.742	.872	--	--
Instruments and related equipment	.220	.773	--	--
Miscellaneous manufacturing	.326	.466	--	--
Railroad transportation	.657	.584	.073	.511
Trucking and warehousing	1.612	1.401	.211	1.477
Local transit	.107	.294	--	--
Air transportation	1.204	.499	.706	4.944
Pipeline transportation	.022	.023	--	--
Transportation services	.156	.223	--	--
Water transportation	.172	.230	--	--
Communications	1.650	1.482	.168	1.180

See footnotes at end of table.

**Table 2--Dependency indexes for Georgia, 1980 (continued)**

(In percent)

Industry	Employment		Georgia excess employment <sup>1/</sup>	Dependency index <sup>2/</sup>
	Georgia	United States		
Electrical, gas, and sanitation services	.933	.903	.030	.210
Wholesale trade	7.275	5.786	1.489	10.430
Retail trade	15.759	16.501	--	--
Banking	1.401	1.725	--	--
Other credit agencies	.959	.991	--	--
Insurance	1.850	1.886	--	--
Real estate and combinations	1.042	1.160	--	--
Hotel and other lodging	1.311	1.200	.112	.781
Personal, miscellaneous business, and repair services	4.357	4.694	--	--
Auto repair service	.687	.630	.058	.403
Amusement	.526	.842	--	--
Motion pictures	.150	.243	--	--
Medical and other health	3.475	5.713	--	--
Private education	1.186	1.465	--	--
Nonprofit organizations	2.425	3.012	--	--
Miscellaneous services	1.311	1.635	--	--
Federal civilian	3.874	3.270	.604	4.232
Federal military	4.116	2.680	1.435	10.055
Nonfarm proprietors	7.142	7.663	--	--
Total <sup>3/</sup>	100.00	100.00	14.275	100.00

<sup>1/</sup> U.S. employment minus Georgia employment. Figures may not be exactly equal to Georgia minus U.S. because of rounding. Dashes signify no excess employment.

<sup>2/</sup> Individual industry excess employment expressed as a percent of Georgia's total excess employment (sum of column 4).

<sup>3/</sup> Sum of parts may not equal totals because of rounding.

**Table 3--Value added, hours worked, payroll, and capital productivity,<sup>1/</sup> Georgia forest products industry, 1977<sup>2/</sup>**

Industry	Value added	Payroll	Hours worked	Productivity	Productivity change, 1972-77
	-- \$ Million --	--	Million	\$VAMP per hour	Percent
Lumber and wood products	4,924	1,916	357	8.42	42.60
Wood furniture	760	377	79	4.85	3.34
Paper and allied products	9,504	3,785	410	13.95	9.41

<sup>1/</sup> Productivity equals value added (VAMP), minus payroll, divided by hours worked.

<sup>2/</sup> Source: U.S. Bureau of the Census, Census of Manufacturing, for 1972 and 1977, Georgia and the United States, available in 1976 and 1980, respectively. In the few instances where data were not available for some subindustry sectors, the distribution of the number of establishments was used to estimate nondisclosures.

**Appendix 2**  
**Georgia Counties**  
**by Substate Planning**  
**and Development**  
**Districts**

District code	Counties
a	Cherokee, Fannin, Gilmer, Murray, Pickens, Whitfield
b	Bartow, Catoosa, Chattooga, Dade, Floyd, Gordon, Haralson, Paulding, Polk, Walker
c	Banks, Dawson, Forsyth, Franklin, Habersham, Hall, Hart, Lumpkin, Rabun, Stephens, Towns, Union, White
d	Clayton, Cobb, DeKalb, Douglas, Fulton, Gwinnett, Rockdale
e	Barrow, Clarke, Elbert, Greene, Jackson, Madison, Morgan, Oconee, Oglethorpe, Walton
f	Carroll, Coweta, Heard, Meriwether, Troup
g	Butts, Fayette, Henry, Lamar, Newton, Pike, Spalding, Upson,
h	Baldwin, Hancock, Jasper, Johnson, Putnam, Washington, Wilkinson
i	Chattahoochee, Clay, Harris, Muscogee, Quitman, Randolph, Stewart, Talbot
j	Bibb, Crawford, Houston, Jones, Monroe, Peach, Twiggs
k	Burke, Columbia, Emanuel, Glascock, Jefferson, Jenkins, Lincoln, McDuffie, Richmond, Screven, Taliaferro, Warren, Wilkes
l	Crisp, Dooly, Macon, Marion, Schley, Sumter, Taylor, Webster
m	Bleckley, Dodge, Laurens, Montgomery, Pulaski, Telfair, Treutlen, Wheeler, Wilcox
n	Appling, Bullock, Candler, Evans, Jeff Davis, Tattnall, Toombs, Wayne
o	Baker, Calhoun, Colquitt, Decatur, Dougherty, Early, Grady, Lee, Miller, Mitchell, Seminole, Terrell, Thomas, Worth
p	Ben Hill, Berrien, Brooks, Cook, Echols, Irwin, Lanier, Lowndes, Tift, Turner
q	Bryan, Camden, Chatham, Effingham, Glynn, Liberty, Long, McIntosh
r	Atkinson, Bacon, Brantley, Charlton, Clinch, Coffee, Pierce, Ware

**Maki, Wilbur R.; Schallau, Con H; Foster, Bennett B.; Redmond, Clair H.** Georgia's forest products industry: performance and contribution to the state's economy, 1970 to 1980. Res. Pap. PNW-332. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; **1985.** 22 p.

Employment and earnings in Georgia's forest products industry, like those of most Southern States, grew significantly between 1970 and 1980. The forest products industry accounted for nearly the same share of the State's economic base in 1980 as in 1970. Moreover, during this period, the State increased its share of the Nation's forest products industry employment and earnings. Pulp and allied products had the highest productivity, but lumber and wood products experienced the largest increase in productivity between 1972 and 1977.

Keywords: Forest products industries, economics in wood industry, Georgia.

The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives — as directed by Congress — to provide increasingly greater service to a growing Nation.

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